

**WHAT IS CLAIMED IS:**

1. A method for diagnosing disease in an experimental sample comprising:  
measuring the physiological state of said experimental sample;  
selecting reference samples of known disease state that are similar to said  
experimental sample in physiological state; and  
comparing said experimental sample to said reference samples to identify  
the reference sample that matches said experimental sample; and

5 diagnosing the experimental sample with the disease of the matching  
reference sample.

10 2. A method for diagnosing disease in an experimental sample comprising:

measuring the physiological state of said experimental sample;

selecting reference samples of known disease state that are similar to said  
experimental sample in physiological; and

15 comparing the expression profile of said experimental sample to the  
expression profile of said reference samples to identify the reference sample that  
matches said experimental sample; and

20 diagnosing the experimental sample with the disease of the matching  
reference sample.

25 3. A method for identifying markers to assay efficacy of drug therapies in  
women comprising:

measuring the expression profile of a female sample before drug treatment  
and comparing it to the expression profile of a sample from the same subject after  
drug treatment.

30 4. A method to diagnose physiological disorders comprising:

comparing a gene expression profile from an experimental sample to a  
gene expression profile that represents an average of a plurality of reference  
samples with matching indicators of physiological status.

5. A method to identify the physiological status of a sample of unknown origin comprising:

generating an expression profile from the experimental sample, and comparing said expression profile to a plurality of expression profiles of physiological state.

6. A method to identify markers of different physiological states in humans comprising:

matching a sample from a first physiological state to a sample from a second physiological state;

comparing the expression profiles from said first and second physiological states; and

identifying genes that are differentially expressed in said first and second physiological states.

7. The method of claim 5 wherein said samples are matched according to pharmacological state.

8. The method of claim 5 wherein said samples are matched according to  
20 disease state.

9. The method of claim 5 wherein said samples are matched according to pharmacological state and disease state.